

We claim:

1. A process for preparing a low-odor hydrogel-forming acrylic acid polymer, which comprises the steps of:
  - a) preparing a polymeric hydrogel by free-radically polymerizing a monomer composition comprising at least 50% by weight of acrylic acid in an aqueous polymerization medium and converting said hydrogel into a particulate hydrogel or into hydrogel-forming powder; and optionally
  - b) treating said particulate hydrogel or said hydrogel-forming powder with a crosslinking substance which, actually or latently, contain at least two functional groups capable of reacting with the carboxyl groups on the addition polymer;
- characterized by the acrylic acid used in step a) containing less than 500 ppm (by weight, based on acrylic acid) of acrylic acid oligomers.
2. A process as claimed in claim 1, wherein step a) is effected using an acrylic acid whose total level of triacrylic acid and higher oligomers of acrylic acid is less than 100 ppm and specifically less than 50 ppm.
3. A process as claimed in claim 1 or 2, wherein step a) is effected using an acrylic acid obtained by a single or multiple stage crystallization of a crude acrylic acid having a content of oligomers of the acrylic acid in the range from 0.07 to 3% by weight.
4. A process as claimed in claim 3, wherein step a) is effected using an acrylic acid obtained by single or multiple stage crystallization of said crude acrylic acid at from 0 to 13°C.
5. A process as claimed in any preceding claim, wherein the acrylic acid used in step a) contains less than 500 ppm of aliphatic carboxylic acids, based on the weight of the acrylic acid.
6. A process as claimed in any preceding claim, wherein the acrylic acid used in step a) is in the form of a partially or completely neutralized aqueous acrylic acid solution.

7. A process as claimed in any preceding claim, wherein the crosslinker in step c) is selected from compounds capable of forming ester groups with the carboxyl groups on the addition polymer.
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8. A process as claimed in any preceding claim, wherein the monomer mixture to be polymerized in step a) comprises, based on its total weight,
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- from 50 to 99.99% by weight of acrylic acid as monomer A,
  - from 0 to 49.99% by weight of one or more monoethylenically unsaturated monomers B which are copolymerizable with acrylic acid, and
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- from 0.01 to 30% by weight of at least one crosslinking compound C.
9. A process as claimed in any preceding claim, wherein an acrylic acid having an acrylic acid oligomer content
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- < 500 ppm is provided directly prior to its use in step a).
10. The use of an acrylic acid having an acrylic acid oligomer content of less than 500 ppm for preparing a low-odor
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- hydrogel-forming acrylic acid polymer.
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